

THE CONTENTS OF THIS
DOCUMENT ARE THE HIGHEST
QUALITY OBTAINABLE

INITIAL *gj* DATE 01/22/93

DECISION DOCUMENTATION PACKAGE COVER SHEET

PREPARED IN ACCORDANCE WITH

TRACK 1 SITES: **GUIDANCE FOR ASSESSING** **LOW PROBABILITY SITES** **AT INEL**

SITE DESCRIPTION: Site of Underground Storage Tank CFA 681-S	
SITE ID: CFA-37	OPERABLE UNIT: 04-03
WASTE AREA GROUP: 4	

I. SUMMARY - PHYSICAL DESCRIPTION OF THE SITE:

CFA-37 is the historical site of a 500-gal steel underground storage tank (UST) designated as CFA 681-S. The tank was installed in 1949 and used to store #2 diesel fuel oil for heating purposes and remained in use until 1978.

Excavation and removal activities for CFA-681S were conducted on October 30, 1990 following EG&G Idaho Tank Management Program procedures. During tank excavation, field screening for volatile organic compounds (VOCs) was performed by EG&G Idaho Environmental Technology Unit (ETU) personnel using a Photovac Microtip Photoionization Detector. Upon removal, the tank was observed to be rusted with small pin holes. Stained soil with VOCs detected above the EG&G Idaho field action level of 50 mg/kg for diesel-contaminated soil was removed. The contaminated soil was sent to the CFA Landfill for landfarming. When monitoring indicated VOCs below the action level, the excavation was backfilled to grade with noncontaminated soil.

Prior to backfilling, six biased soil samples were collected by ETU personnel and shipped to Data Chem Laboratories of Salt Lake City, UT for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylene (BTEX) analyses. TPH was found in five of the six samples, ranging from 10-180 mg/kg, below the State of Idaho action level of 1000 mg/kg for diesel-contaminated soils. TPH were not detected in the sixth sample and BTEX were not detected in any of the samples.

Based on the condition of the tank upon removal and the laboratory analytical results of the soil samples collected from the excavation, it is determined that no hazard to human health or the environment exists at this location from the contents or removal of the tank. Although some level of TPH was detected in soil samples, the levels are below the State of Idaho action level and thus the site should be reclassified to "no-action" status.

DECISION RECOMMENDATION

II. SUMMARY - QUALITATIVE ASSESSMENT OF RISK:

The information collected is determined to be reliable and the qualitative risk assessment determined to be low. Determination of the tank contents, removal of the contents, and removal of the tank were done according to established procedures with no deviations or unusual occurrences. Therefore, based on the Qualitative Risk and Reliability Evaluation Table, it is concluded that no further action is required for CFA-37.

III. SUMMARY - CONSEQUENCES OF ERROR:

If a decision is made in error to close CFA-37, the possibility exists for migration of contaminants to groundwater. The potential contaminants include total petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylene. If not all of the contaminated soil was removed during the tank removal process, some or all of these contaminants may be present and could potentially migrate to the groundwater, posing a risk to human health and the environment.

If the decision is made in error to further remediate CFA-34, realized benefits would be minimal relative to the high investment in remediation expenditures.

IV. SUMMARY - OTHER DECISION DRIVERS

No other decision drivers are apparent for CFA-37.

RECOMMENDED ACTION:

It is recommended that COCA Site CFA-37 be reclassified to "no-action" status and be removed from the list of INEL solid waste management units. Biased soil samples taken from the excavation were found to contain low levels of TPH ranging from 10-180 mg/kg, but below the State of Idaho maximum allowable of 1000 mg/kg for diesel-contaminated soil. BTEX were not detected in any of the soil samples. Based on this and additional information contained in this documentation package, the risk that this site poses has been assessed to be low.

SIGNATURES

PAGES:

DATE: 2/3/92

Prepared By: *L. Benson*

DOE WAG Manager:

Approved By:

Independent Review: *Shannon Waters*

NO FURTHER ACTION DETERMINATION

The U. S. Department of Energy, U. S. Environmental Protection Agency-Region 10 and the State of Idaho have completed a review of the referenced information for Central Facilities Area (CFA) -37 hazardous site, as it pertains to the INEL Federal Facility Agreement of December 4, 1991. Based on this review, the parties have determined that no further action for purposes of investigation or study is justified. This decision is subject to review at the time of issuance of the Record of Decision.

Brief Summary of the basis for no further action:

see Decision Statement

References:

*Track 1 pkg
Tank disposal file
initial assessment*

DOE Project Manager

Lisa Green for JH

1/7/93

Date

EPA Project Manager

Wayne Kew

1/7/93

Date

Idaho Project Manager

Cheryl Napp

1/7/93

Date

DECISION STATEMENT
(BY DOE RPM)

DATE RECD:

1/7/93

CEA-37

DISPOSITION:

The tank at CEA-37 was removed and all contaminated soils above action levels were removed. No further action is recommended.

DATE:

1/7/93

PAGES (DECISION
STATEMENT)

NAME:

Lisa Green for JLLyle

SIGNATURE:

Lisa Green for JLLyle

DECISION STATEMENT
(BY EPA RPM)

DATE RECD:

1/6/93

CFA 37

DISPOSITION:

CFA 681 UST used for diesel in service between '49 and '78. 2.5" of liquid observed in bottom of tank. This represented 2.5 gal of #2 Fuel oil (71% with 29% H₂O). Total volume of liquid may be 19 gal by tank volume calculation. Analysis of tank contents for metals inconclusive. Field PID readings for 1 of 6 samples exceeded 25 ppm. Laboratory analysis for BTEX were ND in 5 soil samples. Pin holes & rust observed when tank removed. Some contaminated soil was removed and sent to CFA landfill. Based on information it does not appear that a significant source remains at this site. No further action is recommended.

DATE:

1/7/93

PAGES (DECISION
STATEMENT)

NAME:

Wayne Pierre

SIGNATURE:

Wayne Pierre

DECISION STATEMENT
(BY STATE RPM)

DATE RECD: 1/6/93 CFA-37

DISPOSITION:

The ~~source~~^{tank} has been removed. The soils excavated from the pit do not exceed risk based action levels. This data is ~~provided~~^{provided} included in the Tank Removal Summary CFA-681. No further action is recommended for the source area.

DATE: 1/7/93

PAGES (DECISION
STATEMENT)

NAME: Dan J. Nygard

SIGNATURE: Dan J. Nygard

PROCESS/WASTE WORKSHEET

SITE ID: CFA-37 (CFA-681S)

col 1 Processes Associated with this site	col 2 Waste Description & Handling Procedures	col 3 Description & Location of any Artifact/Structures/Disposal Areas Associated with this Waste or Process
Process Fuel storage in a UST	#2 diesel fuel oil, typically filled from a truck	Artifact: Underground storage tank Location: Approximately 10 ft from the southeast end of CFA-681 Description: 500-gal steel tank
		Artifact: Associated piping Location: With tank, 10 ft southeast of CFA-681 Description:
		Artifact Location Description
Process Tank removal	Tank, tank contents, potentially contaminated soil	Artifact: 2.5 in. of liquid - insufficient product to be removed by pumping; removed by adding absorbent and then sent to the CFA landfill for disposal Location: CFA-681S UST Description: #2 diesel fuel oil
		Artifact: Underground storage tank Location: Approximately 10 ft from the southeast end of CFA-681 Description: 500-gal steel tank
		Artifact: Unknown volume of contaminated soil Location: UST excavation 10 ft from southeast end of CFA-681 Description: Soil stained by total petroleum hydrocarbons
Process		Artifact: Location: Description:
		Artifact: Location: Description:
		Artifact Location Description

CONTAMINANT WORKSHEET**SITE ID:** CFA-37 (CFA-681S)**PROCESS** (col 1) Tank Removal**Waste:** Tank
Contents

Col 4 What known/potential hazardous substances/constituents are associated with this waste or process?	Col 5 Potential sources associated with this hazardous material?	Col 6 Known/estimated concentrations of hazardous substances/ constituents	Col 7 Risk based concentration (mg/kg)	Col 8 Qualitative risk assessment (Hi/Med/Lo)	Col 9 Overall reliability (Hi/Med/Lo)
Ethyl Methacrylate	Tank Contents, Oil Phase	200.41 mg/kg ^a	---b	---c	---d
Methylene Chloride	Tank Contents, Oil Phase	534.84 mg/kg	---b	---c	---d
Toluene	Tank Contents, Oil Phase	399.18 mg/kg	---b	---c	---d
Xylene (meta and para)	Tank Contents, Oil Phase	1041.8 mg/kg	---b	---c	---d
Xylene (ortho)	Tank Contents, Oil Phase	543.44 mg/kg	---b	---c	---d
2-Methylnaphthalene	Tank Contents, Oil Phase	3105.31 mg/kg	---b	---c	---d
Naphthalene	Tank Contents, Oil Phase	1045.08 mg/kg	---b	---c	---d
Mercury	Tank Contents, Oil Phase	0.022 mg/kg	---b	---c	---d
Zinc	Tank Contents, Oil Phase	8.5 mg/kg ^a	---b	---c	---d
Acetone	Tank Contents, Liquid Phase	3.38 mg/kg ^a	---b	---c	---d
Ethyl Methacrylate	Tank Contents, Liquid Phase	0.611 mg/kg ^a	---b	---c	---d
Methylene Chloride	Tank Contents, Liquid Phase	2.053 mg/kg ^a	---b	---c	---d
Toluene	Tank Contents, Liquid Phase	1.351 mg/kg ^a	---b	---c	---d
Xylene (meta and para)	Tank Contents, Liquid Phase	3.588 mg/kg ^a	---b	---c	---d
Xylene (ortho)	Tank Contents, Liquid Phase	1.748 mg/kg ^a	---b	---c	---d
Cadmium	Tank Contents, Liquid Phase	0.30 mg/kg	---b	---c	---d
Copper	Tank Contents, Liquid Phase	1.7 mg/kg	---b	---c	---d
Zinc	Tank Contents, Liquid Phase	2.5 mg/kg	---b	---c	---d

CONTAMINANT WORKSHEET (Continued)**SITE ID: CFA-37 (CFA-681S)****PROCESS** (col 1) Tank Removal**Waste:** Soil

Col 4 What known/potential hazardous substances/constituents are associated with this waste or process?	Col 5 Potential sources associated with this hazardous material?	Col 6 Known/estimated concentrations of hazardous substances/constituents	Col 7 Risk based concentration (mg/kg)	Col 8 Qualitative risk assessment (Hi/Med/Lo)	Col 9 Overall reliability (Hi/Med/Lo)
Benzene	Soil	ND, DL = 0.05 mg/kg*	---	Low	High
Toluene	Soil	ND, DL = 0.05 mg/kg*	---	Low	High
Ethylbenzene	Soil	ND, DL = 0.05 mg/kg*	---	Low	High
Xylene	Soil	ND, DL=0.1 mg/kg*	---	Low	High
Total Petroleum Hydrocarbons (TPH)	Soil	10-180 mg/kg	---g	Low	High

- a. Compound was detected below the practical quantitation limit; concentration reported is estimated.
- b. Risk based concentration not determined for tank contents.
- c. Qualitative risk assessment not addressed because no risk based concentration was determined (see b. above).
- d. Overall reliability not addressed because qualitative risk assessment not addressed (see c. above).
- e. A concentration of this compound was detected in the laboratory blank accompanying the field sample; as a result, the concentration detected in the sample may be due to laboratory contamination.
- f. Risk based concentration not determined for these compounds as they were not detected in the sample.
- g. Risk based concentration not determined for this compound as no toxicity information exists.
- * Concentration converted from ug/g to mg/kg.

Note: Methods of analyses are as follows:

Volatile organic compounds - EPA-SW-846-8240;

Semi-volatile organic compounds - EPA-SW-846-8270;

Metals - EPA-SW-846-6060; mercury - EPA-SW-846-7470;

BTEX - EPA-SW-846-8020;

TPH - California Department of Health Services Method.

QUALITATIVE RISK AND RELIABILITY EVALUATION TABLE ^a			
	QUALITATIVE RISK		
	LOW	MEDIUM	HIGH
HIGHLY UN-RELIABLE	TRACK II		
	screening data		screening data
HIGHLY RELIABLE	NO ACTION REQUIRED	RI/FS	INTERIM ACTION ^b
reliability	LOW concentration resulting in risk < 10 ⁻⁶	MEDIUM	HIGH concentration resulting in risk > 10 ⁻⁶
	qualitative risk		

a. For all potential contaminants.

b. If there exist sufficient data to identify an appropriate remedy.

Question 1. What are the waste generation process locations and dates of operation associated with this site?

Block 1 Answer:

Based on historical records, site CFA-37 (tank no. CFA-681S) was the location of a 500-gal steel tank. The tank was located approximately 10 ft from the southeast end of building CFA-681 and used for storing #2 diesel fuel oil for heating purposes. The tank was installed in 1949 and taken out of service in 1978. A map showing the tank location is attached.

Block 2 How reliable is/are the information source/s? X High Med Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Information was obtained from the Tank Removal Summary and TMP logbooks.

Block 3 Has this INFORMATION been confirmed? X Yes No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

The tank was removed in October 1990, confirming its existence, location, and size.

Block 4 **Sources of Information:** (check appropriate box(es) and write in source)

No available information	<input type="checkbox"/>	Analytical data	<input type="checkbox"/>
Anecdotal	<input type="checkbox"/>	Documentation about data	<input type="checkbox"/>
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>
Summary documents	<input checked="" type="checkbox"/> (2)	Well data	<input type="checkbox"/>
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>
OTHER	<input checked="" type="checkbox"/> (1)		

Question 2. What are the disposal process locations and dates of operation associated with this site? How was the waste disposed?

Block 1 Answer:

In May 1989, the contents of the tank were sampled by EG&G Idaho Environmental Science and Technology personnel for waste profile analysis. Approximately 2.5 in. of liquid were measured in the tank. The liquid sample was reported as three-phased and sent to EG&G Idaho Environmental Chemistry (EC) for metals, volatile organic compounds (VOCs) and semi-VOCs analyses. Ignitability and corrosivity were also determined. EG&G EC reported the phases as 71% fuel oil/diesel, 27% aqueous, and 2% emulsion. Analyses were performed on the fuel oil and aqueous phases. Compounds detected and at what levels are listed in the Contaminant Worksheet and those not detected are attached. Neither phase was reported as exhibiting the hazardous characteristics of ignitability or corrosivity, nor did the metals exceed EP Toxicity levels. The contents were not removed from the tank prior to excavation due to the small quantity present.

The tank was excavated on October 30, 1990 following EG&G Idaho Tank Management Program removal procedures. As directed by the Sampling and Analysis Plan for tank removal, VOCs were screened with a Microtip Photoionization Detector (PID) by EG&G Environmental Technology Unit (ETU) personnel during the excavation. Upon removal, it was noted that the tank had rusted and contained small pin holes. It is speculated that the pinholes could have allowed the fuel oil to leak from the tank. Stained soil was observed and subsequent screening detected VOCs above the EG&G Idaho field action level of 50 mg/kg for diesel-contaminated soil. Soil with VOCs concentrations above this action level was removed from the excavation, placed aside, and sent to the CFA Landfill for landfarming. After the tank was removed, biased soil samples were collected by ETU personnel from a uniform depth of 9 ft for laboratory analysis of total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and xylene (BTEX). A map showing the sampling locations is attached. Field screening of these soil samples indicated VOCs below the action level, therefore, the excavation was determined acceptable for backfilling and was done with original and noncontaminated soil. The Tank Removal Summary indicates that the new soil was obtained from the INEL gravel pit. Residual liquid and debris in the tank were removed using absorbent material and sent to the CFA Landfill for disposal.

The tank was taken to the tank storage yard at CFA before being cut up and sent to Pacific Steel of Idaho Falls, ID on December 12, 1990 for recycling. Disposition of the associated piping was not specifically addressed in tank removal documentation, but photographs and conversation with TMP personnel reveal that the fill and vent pipes were removed and the piping to the building was capped.

The six biased soil samples were analyzed by Data Chem Laboratories of Salt Lake City, UT. Analyses revealed TPH present in five samples ranging from 10 to 180 mg/kg and no TPH detected in the sixth sample. No BTEX were detected in any of the samples. Detection limits for TPH and BTEX are 10 mg/kg, 0.05 mg/kg, 0.05 mg/kg, 0.05 mg/kg, and 0.1 mg/kg, respectively.

Block 2 How reliable is/are the information source/s? ☒ High ☐ Med ☐ Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Information was obtained from logbooks and records documenting the removal activities.

Question 2. What are the disposal process locations and dates of operation associated with this site? How was the waste disposed?
(Continued)

Block 3 Has this INFORMATION been confirmed? X Yes ___ No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Disposal records, sampling logbooks, and removal procedures coincide to provide verification of this information.

Block 4 **Sources of Information:** (check appropriate box(es) and write in source)

No available information	<input type="checkbox"/>	_____	Analytical data	<input checked="" type="checkbox"/>	(3)(4)(5)
Anecdotal	<input checked="" type="checkbox"/>	(10)(11)	Documentation about data	<input type="checkbox"/>	_____
Historical process data	<input type="checkbox"/>	_____	Disposal data	<input type="checkbox"/>	_____
Current process data	<input type="checkbox"/>	_____	Q.A. data	<input type="checkbox"/>	_____
Aerial photographs	<input type="checkbox"/>	_____	Safety analysis report	<input type="checkbox"/>	_____
Engineering/site drawings	<input type="checkbox"/>	_____	D&D report	<input type="checkbox"/>	_____
Unusual Occurrence Report	<input type="checkbox"/>	_____	Initial assessment	<input type="checkbox"/>	_____
Summary documents	<input checked="" type="checkbox"/>	(2)	Well data	<input type="checkbox"/>	_____
Facility SOPs	<input type="checkbox"/>	_____	Construction data	<input type="checkbox"/>	_____
OTHER	<input checked="" type="checkbox"/>	(1)(7)(8)(9)(12)(13)			

**Question 3. Is there empirical, circumstantial, or other evidence of migration?
If so, what is it?**

Block 1 Answer:

The tank CFA-681S had rusted and contained small pin holes which could have allowed fuel oil to leak from the tank. Logbooks document the observation of areas of stained soil and VOCs present in the soil, and laboratory analyses detected TPH in the soil samples from the tank excavation.

Block 2 How reliable is/are the information source/s? XHigh __Med __Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The sources are considered records of the removal process.

Block 3 Has this INFORMATION been confirmed? XYes __No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Several sources provide the data to verify the evidence of migration.

Block 4 Sources of Information: (check appropriate box(es) and write in source)

No available information	<input type="checkbox"/>	Analytical data	<input checked="" type="checkbox"/> (3)
Anecdotal	<input checked="" type="checkbox"/> (10)	Documentation about data	<input type="checkbox"/>
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>
Summary documents	<input type="checkbox"/>	Well data	<input type="checkbox"/>
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>
OTHER	<input checked="" type="checkbox"/> (1)		

Question 4. Is there evidence that a source exists at this site? If so, list the sources and describe the evidence.

Block 1 Answer:

No evidence exists indicating that a source is present at this site. The tank was removed and laboratory analyses of soil samples collected after removal indicated TPH ranging from ND-180 mg/kg, below the State of Idaho action level of 1000 mg/kg for diesel contaminated soils. BTEX were not detected in any of the samples.

Block 2 How reliable is/are the information source/s? XHigh Med Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Information was obtained from the Tank Removal Summary and logsheets written during the tank removal process documenting actual removal activities.

Block 3 Has this INFORMATION been confirmed? XYes No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Field screening of the soil samples for VOCs correspond with laboratory results, verifying no hazardous constituents.

Block 4 Sources of Information: (check appropriate box(es) and write in source)

No available information	<input type="checkbox"/>	Analytical data	<input checked="" type="checkbox"/> (3)
Anecdotal	<input type="checkbox"/>	Documentation about data	<input type="checkbox"/>
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>
Summary documents	<input checked="" type="checkbox"/> (2)	Well data	<input type="checkbox"/>
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>
OTHER	<input checked="" type="checkbox"/> (1)		

Question 5. Does the site operating or disposal historical information allow estimation of the pattern of potential contamination? If the pattern is expected to be a scattering of hot spots, what is the expected minimum size of a significant hot spot?			
Block 1 Answer: The pattern of potential contamination is considered to be a hot spot around a leak in the tank.			
Block 2 How reliable is/are the information source/s? <u> X </u> High <u> </u> Med <u> </u> Low (check one) EXPLAIN THE REASONING BEHIND THIS EVALUATION. The information is based on past experience with leaking tanks.			
Block 3 Has this INFORMATION been confirmed? <u> X </u> Yes <u> </u> No (check one) IF SO, DESCRIBE THE CONFIRMATION. Areas of contaminated soil surrounding the tank were observed during the removal activities.			
Block 4 Sources of Information: (check appropriate box(es) and write in source)			
No available information	<input type="checkbox"/>	Analytical data	<input type="checkbox"/>
Anecdotal	<input type="checkbox"/>	Documentation about data	<input type="checkbox"/>
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>
Summary documents	<input type="checkbox"/>	Well data	<input type="checkbox"/>
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>
OTHER	<input type="checkbox"/>	(1)	

Question 6. Estimate the length, width, and depth of the contaminated region. What is the known or estimated volume of the source? If this is an estimated volume, explain carefully how the estimate was derived.

Block 1 Answer:

Laboratory analyses of soil samples taken from the tank bed indicated TPH values ranging from ND-180 mg/kg, below the State of Idaho action levels of 1000 mg/kg for diesel-contaminated soil. BTEX were not detected in any of the samples. These results indicate that no contaminated region presently exists at this site. However, an estimated volume of the source was calculated using a model developed by EG&G Idaho. With the known contents of the tank (i.e., #2 diesel fuel oil) and assuming one tank capacity leaked to the surrounding soil, an estimated volume of the source was determined as follows:

$$V_s = \frac{0.2 \times V_{HC}}{p \times (RS)}$$

where V_s = Volume of contaminated soil at residual saturation (yd^3)

V_{HC} = Volume of discharged hydrocarbons in barrels

= (N gal of spilled fuel) x (1 barrel per 44 gallons)

p = porosity (0.35)

RS = residual saturation (for diesel, $RS = 0.15$)

$$V_s = \frac{0.2 \times 500/44}{0.35 \times 0.15} = 43.29 \text{ } yd^3$$

Block 2 How reliable is/are the information source/s? ☐ High ☒ Med ☐ Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

Tank capacity and contents are known and the model was developed using documented values.

Block 3 Has this INFORMATION been confirmed? ☐ Yes ☒ No (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Block 4 **Sources of Information:** (check appropriate box(es) and write in source)

No available information	<input type="checkbox"/>	Analytical data	<input checked="" type="checkbox"/> (3)(4)(5)
Anecdotal	<input type="checkbox"/>	Documentation about data	<input type="checkbox"/>
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>
Summary documents	<input type="checkbox"/> (2)	Well data	<input type="checkbox"/>
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>
OTHER	<input checked="" type="checkbox"/> (14)		

Question 7. What is the known or estimated quantity of hazardous substance/constituent at this source? If the quantity is an estimate, explain carefully how the estimate was derived.

Block 1 Answer:

Assuming the source was not removed, an estimate of one tank capacity of #2 diesel fuel oil, 500 gal, is determined to be the quantity of hazardous substance at this source. However, laboratory analyses of soil samples from the excavation support the conclusion that no source presently exists. TPH was detected in the soil samples ranging from ND-180 mg/kg, below the State of Idaho action level of 1000 mg/kg for diesel-contaminated soil. BTEX were not detected in the soil samples.

Block 2 How reliable is/are the information source/s? XHigh Med Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The information was obtained from the documentation recorded during the removal process and from laboratory analytical results of the samples.

Block 3 Has this INFORMATION been confirmed? Yes XNo (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Laboratory analytical results have not been validated.

Block 4 **Sources of Information:** (check appropriate box(es) and write in source)

No available information	<input type="checkbox"/>	Analytical data	<input checked="" type="checkbox"/>	(3)(4)(5)
Anecdotal	<input type="checkbox"/>	Documentation about data	<input type="checkbox"/>	
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>	
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>	
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>	
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>	
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>	
Summary documents	<input checked="" type="checkbox"/>	Well data	<input type="checkbox"/>	(2)
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>	
OTHER	<input checked="" type="checkbox"/>			(1)

Question 8. Is there evidence that this hazardous substance/constituent is present at the source as it exists today? If so, describe the evidence.

Block 1 Answer:

No evidence exists that hazardous substances are present at the source as it exists today. The tank has been removed and the site has been backfilled to grade with clean soil. The VOCs readings taken during excavation were below the EG&G Idaho field action level of 50 mg/kg for diesel-contaminated soil. Laboratory analytical results of the soil samples detected TPH ranging from ND-180 mg/kg, below the State of Idaho action limit of 1000 mg/kg for diesel-contaminated soil and no BTEX were detected.

Block 2 How reliable is/are the information source/s? XHigh Med Low (check one)

EXPLAIN THE REASONING BEHIND THIS EVALUATION.

The information was obtained from logbooks documenting the removal process and from laboratory analytical results.

Block 3 Has this INFORMATION been confirmed? Yes XNo (check one)

IF SO, DESCRIBE THE CONFIRMATION.

Block 4 Sources of Information: (check appropriate box(es) and write in source)

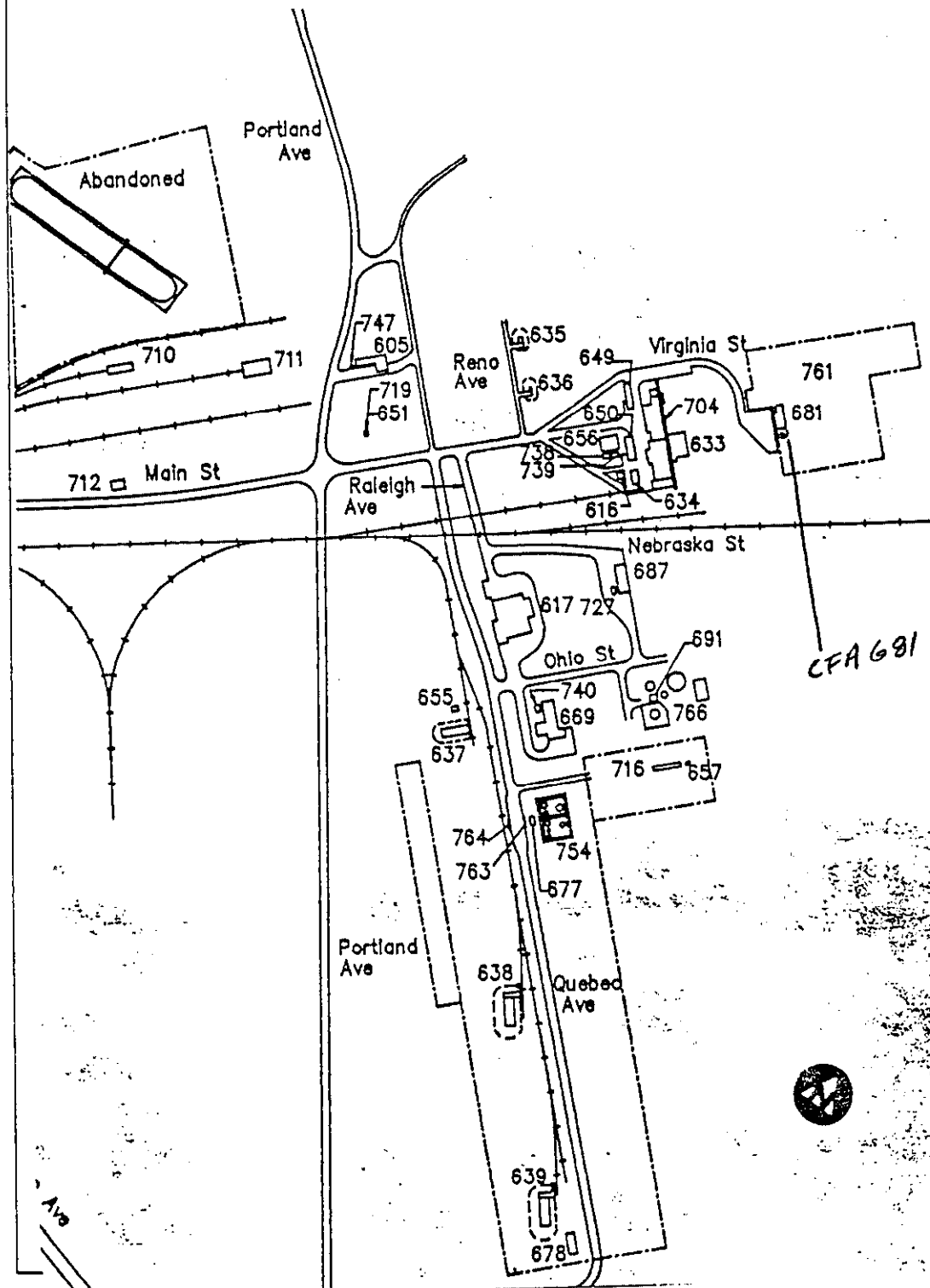
No available information	<input type="checkbox"/>	Analytical data	<input checked="" type="checkbox"/> (3)
Anecdotal	<input type="checkbox"/>	Documentation about data	<input type="checkbox"/>
Historical process data	<input type="checkbox"/>	Disposal data	<input type="checkbox"/>
Current process data	<input type="checkbox"/>	Q.A. data	<input type="checkbox"/>
Aerial photographs	<input type="checkbox"/>	Safety analysis report	<input type="checkbox"/>
Engineering/site drawings	<input type="checkbox"/>	D&D report	<input type="checkbox"/>
Unusual Occurrence Report	<input type="checkbox"/>	Initial assessment	<input type="checkbox"/>
Summary documents	<input checked="" type="checkbox"/> (2)	Well data	<input type="checkbox"/>
Facility SOPs	<input type="checkbox"/>	Construction data	<input type="checkbox"/>
OTHER	<input checked="" type="checkbox"/> (1)(8)		

REFERENCES

- (1) Daniel, V. E., EG&G Sample Logbook, October 30, 1990, pp.37-38, 40-42.
- (2) Daniel, V. E., Tank Removal Summary For CFA-681, March 14, 1991.
- (3) Data Chem Laboratories Analytical Report, dated November 20, 1990.
- (4) EG&G Idaho, Inc. Environmental Chemistry Analytical Report, ROA 890074-A, February 1, 1990.
- (5) EG&G Idaho, Inc. Environmental Chemistry Analytical Report, ROA 890074-C, June 7, 1990.
- (6) EG&G Idaho, Inc. photographs.
- (7) EG&G Idaho, Inc. Tank Disposition Form, CFA-681S, November 26, 1990.
- (8) EG&G Idaho, Inc. Tank Management Program Removal Procedures for UST for Tank Number CF 681-S, October 30, 1990.
- (9) Gitt, M. J., Sampling and Analysis Plan for Site Assessment During the Closure or Replacement of Nonradioactive Underground Storage Tanks, EGG-ESQ-9116, August 1990.
- (10) Hood, D. N., personal communication, December 9, 1991.
- (11) Hood, D. N., personal communication, January 13, 1992.
- (12) Murphy, R. J., ltr to M. J. Nolan, INEL Tank Closure Program, RJM-03-90, April 17, 1990.
- (13) Permann, P., Environmental Science and Technology Sampling Logbook, pp. 0063, 0065-0066, dated May 22, 1989.
- (14) Rood, A. S., Estimation Of Volume Of Contaminated Soil From A Fuel Oil Spill, August 7, 1990.

FIELD SKETCH OF TANK LOCATION

Include North Arrow and Scale or Dimensions



Recorded by: PG Pennant Checked By: _____

CFA-37

VOLATILE ORGANIC COMPOUNDS NOT DETECTED
OIL PHASE, EPA METHOD 8240

Compound
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethene
1,2,3-Trichloropropane
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloroethene (total)
1,2-Dichloropropane
1,3-Dichlorobenzene
1,4-Dichloro-2-butene
1,4-Dichlorobenzene
2-Butanone
2-Chloroethyl vinyl ether
2-Hexanone
4-Methyl-2-pentanone
Acetone
Acrolein
Acrylonitrile
Benzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon tetrachloride
Carbon disulfide
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
cis-1,3-Dichloropropene
Dibromochloromethane
Dibromomethane
Dichlorodifluoromethane
Ethyl methacrylate
Iodomethane
Styrene
Tetrachloroethene
trans-1,3-Dichloropropene
Trichloroethene
Trichlorofluoromethane
Vinyl acetate
Vinyl chloride

CFA-37

VOLATILE ORGANIC COMPOUNDS NOT DETECTED
LIQUID PHASE, EPA METHOD 8240

Compound
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethene
1,2,3-Trichloropropane
1,2-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloroethene (total)
1,2-Dichloropropane
1,3-Dichlorobenzene
1,4-Dichloro-2-butene
1,4-Dichlorobenzene
2-Butanone
2-Chloroethyl vinyl ether
2-Hexanone
4-Methyl-2-pentanone
Acrolein
Acrylonitrile
Benzene
Bromodichloromethane
Bromoform
Bromomethane
Carbon tetrachloride
Carbon disulfide
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
cis-1,3-Dichloropropene
Di bromochloromethane
Dibromomethane
Dichlorodifluoromethane
Ethyl methacrylate
Iodomethane
Styrene
Tetrachloroethene
trans-1,3-Dichloropropene
Trichloroethene
Trichlorofluoromethane
Vinyl acetate
Vinyl chloride

CFA-37

SEMIVOLATILE ORGANIC COMPOUNDS LIST NOT DETECTED
OIL PHASE, EPA METHOD 8270

Compound
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1-Chloronaphthalene
1-Naphthylamine
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methylphenol
2-Naphthylamine
2-Nitroaniline
2-Nitrophenol
2-Picoline
3,3'-Dichlorobenzidine
3-Methylcholanthrene
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Aminobiphenyl
4-Bromophenyl phenyl ether
4-Chloro-3-methylphenol
4-Chloroaniline
4-Chlorophenyl phenyl ether
4-Methylphenol
4-Nitroaniline
4-Nitrophenol
7,12-Dimethylbenz(a)anthracene
alpha,alpha-Dimethylphenethylamine
Acenaphthene
Acenaphthylene
Acetophenone
Aldrin
alpha-BHC
alpha-Endosulfan
Aniline
Anthracene
bis-(2-Chloroethoxy)methane
bis-(2-Chloroethyl)ether
bis-(2-Chloroisopropyl)ether
bis-(2-Ethylhexyl)phthalate

CFA-37

SEMIVOLATILE ORGANIC COMPOUNDS LIST NOT DETECTED
OIL PHASE, EPA METHOD 8270
(CONTINUED)

Compound
Benzidine
Benzo(g,h,i)perylene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzoic acid
Benzyl alcohol
beta-BHC
beta-Endosulfan
Butylbenzylphthalate
Chrysene
delta-BHC
Di-n-butylphthalate
Di-n-octylphthalate
Dibenzo(a,h)anthracene
Dibenzofuran
Dieldrin
Diethyl phthalate
Dimethyl phthalate
Dimethylaminoazobenzene
Diphenylamine
Endosulfan sulfate
Endrin ketone
Endrin
Ethylmethanesulfonate
Fluoranthene
Fluorene
gamma-BHC
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)pyrene
Isophorone
Methoxychlor
Methylmethanesulfonate
n-Nitrosodibutylamine
n-Nitroso-di-N-propylamine
n-Nitrosodimethylamine
n-Nitrosodiphenylamine
n-Nitrosopiperidine
Nitrobenzene
P,P'-DDD
P,P'-DDE
P,P'-DDT

CFA-37

SEMIVOLATILE ORGANIC COMPOUNDS NOT DETECTED
OIL PHASE, EPA METHOD 8270
(CONTINUED)

Compound
Pentachlorobenzene
Pentachloronitrobenzene
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
Pronamide
Pyrene

CFA-37

SEMIVOLATILE ORGANIC COMPOUNDS NOT DETECTED
LIQUID PHASE, EPA METHOD 8270

Compound
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1-Chloronaphthalene
1-Naphthylamine
2,3,4,6-Tetrachlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Methylnaphthalene
2-Methylphenol
2-Naphthylamine
2-Nitroaniline
2-Nitrophenol
2-Picoline
3,3'-Dichlorobenzidine
3-Methylcholanthrene
3-Nitroaniline
4,6-Dinitro-2-methylphenol
4-Aminobiphenyl
4-Bromophenyl phenyl ether
4-Chloro-3-methylphenol
4-Chloroaniline
4-Chlorophenyl phenyl ether
4-Methylphenol
4-Nitroaniline
4-Nitrophenol
7,12-Dimethylbenz(a)anthracene
alpha,alpha-Dimethylphenethylamine
Acenaphthene
Acenaphthylene
Acetophenone
Aldrin
alpha-BHC
alpha-Endosulfan
Aniline
Anthracene
bis-(2-Chloroethoxy)methane
bis-(2-Chloroethyl)ether

CFA-37

SEMIVOLATILE ORGANIC COMPOUNDS NOT DETECTED
LIQUID PHASE, EPA METHOD 8270
(CONTINUED)

Compound
bis-(2-Chloroisopropyl)ether
bis-(2-Ethylhexyl)phthalateBenzidine
Benzo(g,h,i)perylene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzoic acid
Benzyl alcohol
beta-BHC
beta-Endosulfan
Butylbenzylphthalate
Chrysene
delta-BHC
Di-n-butylphthalate
Di-n-octylphthalate
Dibenzo(a,h)anthracene
Dibenzofuran
Dieldrin
Diethyl phthalate
Dimethyl phthalate
Dimethylaminoazobenzene
Diphenylamine
Endosulfan sulfate
Endrin ketone
Endrin
Ethylmethanesulfonate
Fluoranthene
Fluorene
gamma-BHC
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno(1,2,3-cd)pyrene
Isophorone
Methoxychlor
Methylmethanesulfonate
n-Nitrosodibutylamine
n-Nitroso-di-N-propylamine
n-Nitrosodimethylamine
n-Nitrosodiphenylamine
n-Nitrosopiperidine
Naphthalene
Nitrobenzene

CFA-37

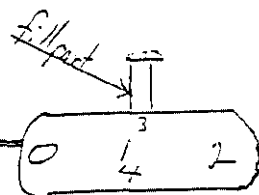
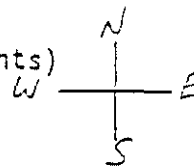
SEMIVOLATILE ORGANIC COMPOUNDS NOT DETECTED
LIQUID PHASE, EPA METHOD 8270
(CONTINUED)

Compound
P,P'-DDD
P,P'-DDE
P,P'-DDT
Pentachlorobenzene
Pentachloronitrobenzene
Pentachlorophenol
Phenacetin
Phenanthrene
Phenol
Pronamide
Pyrene

SAMPLE LOGBOOK

MAP OF SAMPLING LOCATION:
(include location of sampling points and reference points)

CFA-681-S



Note: Number indicates Sample Locations

RECORDED BY: Vince Martin QA CHECK BY: KM Luder